# Great Lakes Research and Education Center

National Park Service
U.S. Department of the Interior



### 2012 in Review

**Mission:** The Great Lakes Research and Education Center (GLREC) facilitates research and provides educational opportunities related to research in 10 national parks in the Western Great Lakes Region. It involves public-private partnerships with a wide range of people and organizations, including researchers, universities, educators, students, and community groups. Through collaborative efforts, the GLREC communicates scientific information to enhance management decisions within the network parks and contributes to public understanding of natural and cultural resources.

#### Research and Education: Supporting the NPS Call to Action in Network Parks

#### **Natural Resources:**

- Improved DNA Screening Methods for Cattail Identification Cuyahoga Valley National Park (CUVA), Pictured Rocks National Lakeshore (PIRO), internship
- Evaluation of the Structural, Fluvial, and Biological Function of Logjams in the East Branch Little Calumet River within Indiana Dunes National Lakeshore (INDU), internship
- Radio Telemetry of American Marten at Isle Royale National Park (ISRO), internship
- Investigations of the Effects of Climate Change on Moose in Voyageurs National Park (VOYA), internship
- Research Institute for Educators at Indiana Dunes National Lakeshore (INDU)





Researchers from the University of Wisconsin-La Crosse River Studies Center examine fish at INDU as part of a project to assess the bioaccumulation of toxins in aquatic food webs of Great Lakes Network Parks.

#### **Cultural Resources:**

- Where's the Beach: Phase I Archaeological Testing of the Nippissing Shoreline (ISRO), internship
- Two Historic Farmstead Cultural Landscapes at Apostle Islands National Lakeshore (APIS) /Archeological Sites Condition Assessments, APIS, internship
- Mapping of the Thompson's Ridge Archaeology Site, Grand Portage National Monument (GRPO) internship
- Researcher/Writer for Visitor Destinations (VOYA), internship

#### Facilitating the Use of Parks for Scientific Inquiry

Research coordination included review of 7 grant proposals and field assistance at SLBE to a Rice University Ph.D. student who received a 2011 George M. Wright Climate Change Fellowship. Bumble Bee Surveys across the U.S. national parks were co-coordinated with Yellowstone Science Learning Center and the U.S. Geological Survey (USGS). Research collaboration included review of three NSF proposals, hosting of the North Central Chapter Meeting of the Society of Wetland Scientists at INDU, and corresponding with scientists to encourage research in national parks. Ninety research permits were managed at INDU, one of the highest rates among national parks. Scientists were provided housing totaling 119 person-nights, which reduced their costs by \$7,615. Eight peer-reviewed journal articles and eleven reports concerning park resources were produced.

#### **Providing Research Information or Value-added Products to Parks**

The GLREC co-sponsored the Western Great Lakes Resource Managers Conference in Ashland, WI, and funded seven internships focusing on water quality, biodiversity, and restoration projects in Great Lakes network parks. Support was provided for research resulting in development of interpretive waysides and talking points on cultural resources (VOYA) and natural resources research based educator workshops (INDU). Relevant research articles were emailed to staff at network parks.

## Communicating the Relevance of and Providing Access to Knowledge Gained through Scientific Research

Presentations for middle-school through university groups (14); conference planning, conferences, and conference presentations/posters (3); educator institutes (9); distance learning events (1); public workshops and presentations (2); presentations for resource managers and educators (1); booths (2); brown-bag lunches (1); curriculum activities (3); citizen science projects (3); resource trunk supplements (2); webpage updates (2 websites); and the Great Lakes Junior Ranger Program (1). An education grant proposal was reviewed and numerous e-mail bulletins were created/shared. Topics included: climate change science, mitigation, and communication; weather; invasive species; water quality; phenology; cattail hybridization; shoreline processes; fish habitat; Karner blue butterfly ecology; sand dune dynamics; bioaccumulation and biomagnification of toxins; the importance of research to resource management; and the Great Lakes Observing System.



Two Karner blue butterflies are part of a USGS / University of Notre Dame investigation on the effects of climate change on the federally endangered Karner blue butterfly. A local high school teacher received a "Research Experience for Teachers" grant through the National Science Foundation to participate.

#### **Promoting Science Literacy and Resource Stewardship through Partnerships**

The GLREC collaborated with forty-seven partner organizations to facilitate both research and education projects. Highlights follow. Seven research internships were supported through cooperative efforts of the GLREC and the University of New England, Lakehead University, Michigan Technological University, IVY Tech Community College, and Ripon College, WI. GLREC staff partnered with Purdue University, Indiana University, and Illinois-Indiana Sea Grant College Program to facilitate the NSF funded "Dune Dynamics: Exploring Movement of Sand, Water, and Life Along the Southern Shore of Lake Michgian" educator workshop. Two educator workshops showing middle- and high-school teachers how to use research data in the classrooms were conducted in partnership with Michigan Sea Grant, USGS, and Indiana Dunes State Park. The University of Notre Dame, USGS, and the National Park Service are investigating the effects of climate change on the federally endangered Karner blue butterfly. The GLREC partnered with these institutions to write and facilitate a "Research Experience for Teachers" grant through the NSF to enable a local high school teacher to participate in the project and develop associated educational activities. A partnership with the Illinois Math and Science Academy and University of Notre Dame resulted in a distance learning event on climate change, reaching 225 students.

2012 Budget	
Category	Dollars
Salaries and benefits	197,000
Network Park	
Assistance/ Internships	12,000
Science	
Education/Outreach	5,000
Supplies	3,500
Other admin costs	
(vehicle)	4,000
Other (services, utilities,	
dorm charges)	3,000
Travel	500
Total	\$225,000

#### Advancing Climate Change Response Strategy

- Facilitated climate change research projects in VOYA and research permits at INDU
- Participated in NPS National Climate Change and Chicago Wilderness Working Groups
- Assisted the National Parks Conservation Association (NPCA) with "Climate Change Communications Project Stakeholder Survey"
- Reviewed George Melendez Wright Climate Change Fellowship Reports (SLBE)
- Facilitated Climate Change Communication Workshop with NPCA and Chicago Wilderness (INDU)

## Table: Students Participating in GLREC Facilitated Research

Degree	Number
High School/V.I.P.	2
Bachelors	112
Masters	4
Ph.D.	3
Internships (BS and post BS)	7

GLREC website: http://www.nps.gov/indu/naturescience/glrec.htm